

The Medulator Analogical Reasoning Study (MARS)

WRAP-UP SURVEY RESULTS

Four questions were posed to all study participants upon completion of all cases. Two additional questions were posed only to ATE subjects. A free-text box was provided to all participants for additional comments.

Question 1 (n = 71)

To what extent have you used other case-based tools similar to Medulator?

KEY: 1 = Never, 2 = Rarely (q year or less), 3 = Occasionally (q month or less), 4 = Often (several times a month)

Results:

Overall rating = 2.18 (identical for ATE and non-ATE participants).

Overall, only 35.2% rated 3 or higher.

Question 2 (n = 71)

How would you rate Medulator as a case-based assessment tool?

KEY: 1 = Poor, 2 = Fair, 3 = Average, 4 = Very Good, 5 = Excellent

Results:

Overall rating = 4.20 (4.09 for ATE participants; 4.29 for non-ATE participants)

Overall, 93% rated 4 (very good) or 5 (excellent)

Question 3 (n = 71)

How applicable is Medulator as a potential supplement to your training?

KEY: 1 = Not at all, 2 = Limited, 3 = Somewhat, 4 = Highly, 5 = Completely

Results:

Overall rating = 3.85 (3.76 for ATE participants; 3.92 for non-ATE participants)

Overall, 73.2% rated 4 (highly) or 5 (completely)

*** See below under Sample Survey Comments

Question 4 (n = 71)

How would you rate the difficulty of the study cases, in general?

KEY: 1 = Too easy, 2 = Fairly easy, 3 = Neither hard nor easy, 4 = Moderately difficult, 5 = Too difficult

Results:

Overall rating = 3.87 (3.82 for ATE participants; 3.92 for non-ATE participants)

Overall, 85.9% rated 4 (moderately difficult) or 5 (too difficult)

Question 5 (n = 33)

How effective has Medulator been at helping you to think "analogically" (i.e. to understand new cases better by mentally retrieving the solution to previous cases)?

KEY:

1 = Totally ineffective. I still don't understand the concept or benefit of analogical reasoning.

2 = Little effect. I understand the concept but not the benefit of analogical reasoning.

3 = Somewhat effective. I understand the concept and believe it may be beneficial.

4 = Very effective. I clearly understand the concept and benefit.

Results:

Overall rating = 3.12 (97% rated 3 or higher)

Question 6 (n = 33)

To what extent did using analogical reasoning help you to solve cases?

KEY:

1 = No help. In fact, it hindered me.

2 = It neither helped nor hindered me.

3 = Somewhat helpful. I could apply the concepts from previous cases to solve new cases.

4 = Very helpful. I was a more effective diagnostician because of analogical reasoning.

Results:

Overall rating = 2.88 (75.8% rated 3 or higher)

SAMPLE SURVEY COMMENTS

"This is a very effective and useful way to learn medicine. I wish that there were more programs like this at use in my school."

"I really liked the interface. The program is easy to use and self-explanatory. I learned a lot and feel that this would be very useful in medical school."

"I thought this was a really great learning tool. Not just because of the analogous nature, which I loved, but also the way the program was set up - easy to use, intuitive, etc."

"The cases were really good. I think that more common diseases are important (not q fever or anthrax) for medical education. I enjoyed the cases more than the analogical reasoning, just because it seemed to get tedious and i had trouble remembering each case."

"I quite liked the format of the medulator, however, I thought the content was pretty obscure and full of Zebras. What's up with all the explosions and crop dusting?" **(This subject rated 3 out of 5 for Applicability)**

"This is such a great medulator! Best I have ever seen! Although it seems that the study cases lean more heavily towards hazardous exposures. (cyanide poisoning, bioterrorism act, ect)"

"I think this would be an excellent program if the cases were more common medical problems. There were some cases like that, but I felt I had a lot of weird pneumonias and biochemical agents. I am not going to see that in my everyday practice" **(This subject rated 3 out of 5 for Applicability)**

".....This is a very effective tool to get much of the benefit of seeing multiple patients in a fraction of the time. I did feel that the analogical reasoning sections were not very helpful, though. There are too many variables to make definat determinations about the similarities of various cases."

"The idea of analogical reasoning was useful in solving cases by seeing the analogies with previous cases.....I believe that the format is very useful as a study/learning tool, but could be more useful if it focused on diseases/problems that are more commonly seen in hospitals."

WRAP-UP SURVEY CONCLUSIONS

1. Subject experience with case-based tools such as **Medulator** is largely lacking, with 65% of subjects responding that they have used similar tools only rarely (once per year or less) or never.
2. Subjects rated **Medulator** very high as a case-based assessment tool. Ratings were slightly higher for subjects who were not required to do ATE. Of subjects who rated 3 or 4 on Question 1 (tool experience), the overall rating of **Medulator** was still 4.16 out of 5, indicating no significant difference in tool rating with previous experience.
3. Three-fourths of all subjects felt that **Medulator** is highly or completely applicable as a potential supplement to their training. This rating result was reduced to some degree by subjects rating case content, rather than the tool on its own merits, as indicated by user comments (see above).
4. Subjects felt that the study cases were moderately difficult, in general, indicating that they were adequately challenged, even though some sub-groups achieved the ceiling (100% accuracy) on the final test case.
5. Nearly all (97%) of ATE subjects felt that **Medulator** was at least somewhat effective at helping them to understand the concept of analogical (case-based) reasoning.
6. Three-fourths of ATE subjects felt that analogical reasoning was somewhat helpful to them in solving cases, even though objective measurements did not agree (ATE was not statistically associated with improved diagnostic accuracy).